

## REMARKS

In accordance with the foregoing, the specification and claim 1, 14, 15, and 17 are amended. Claims 19 and 20 are added. Claims 1, 3, 6-9, and 12-20 are pending and under consideration.

### CLAIM REJECTIONS UNDER 35 U.S.C. §103

Claims 1, 3, 9, and 12-17 are rejected under 35 U.S.C. §103(a) as being unpatentable over the article "All-optical fiber signal processing and regeneration for soliton communications" by Bigo et al. published in IEEE Journal of Selected Topics in Quantum Electronics on October, 1997 (hereinafter "Bigo") with reference to U.S. Patent 5,323,260 to Alfano et al. ("Alfano"), "Optical Networks: A Practical Perspective" by Ramaswami et al. ("Ramaswami"), and "All Optical Clock Recovery at Bit Rates Up to 40 Gbit/s" by Ellis et al. ("Ellis").

Claims 6 and 8 are rejected under 35 U.S.C. §103(a) as unpatentable over Bigo in view of "All-optical FM mode-locking of fiber laser" By Greer et al. ("Greer").

Claims 7 and 18 are rejected under 35 U.S.C. §103(a) as unpatentable over Bigo in view of U. S. Patent No. 5,548,433 to Smith ("Smith").

Independent claims 1, 14, 15, and 17 have been amended to specify:

- "said continuous wave having said wavelength  $\lambda_c$  is inputted from said optical loop, and performs amplitude modulation of said continuous wave by said signal light to obtain amplitude-modulated CW light having said wavelength  $\lambda_c$  and including a component of said frequency  $f_s$  by four-wave mixing using said signal light as pump light" in claim 1 (underlined language is newly added),
- "said continuous wave having said wavelength  $\lambda_c$  is input from said optical loop, and performs amplitude modulation of said continuous wave by said signal light to obtain amplitude-modulated CW light having said wavelength  $\lambda_c$  and including a component of said frequency  $f_s$  by four-wave mixing using said signal light as pump light" in claim 14,
- "said continuous wave having said wavelength  $\lambda_c$  is inputted from said optical loop, and performs amplitude modulation of said continuous wave by said signal light to obtain amplitude-modulated CW light having said wavelength  $\lambda_c$  and including a component of said frequency  $f_s$  by four-wave mixing using said signal light as pump light" in claim 15, and

- "amplitude modulation of said continuous wave by said signal light introduced into said first optical fiber to obtain amplitude-modulated CW light having said wavelength  $\lambda_c$  and including a component of said frequency  $f_s$  is performed in said nonlinear optical medium by four-wave mixing using said signal light as pump light" in claim 17.

The claim amendments are fully supported by the originally filed specification, for example, page 10, lines 2-14.

None of the cited references (i.e., Bigo, Alfano, Ramaswami, Ellis, Greer and Smith) alone or in combination disclose the above-cited newly added features. Therefore independent claims 1, 14, 15, and 17, patentably distinguish over the cited prior art. Dependent claims 1, 6-13 and the newly added claims 18 and 19 are also patentable at least by inheriting patentable features from claim 1 upon which they depend.

#### NEW CLAIMS 19 AND 20

New claims 19 and 20 depend upon claim 1 and are fully supported by the originally filed specification, for example, page 12, line 22 to page 13, line 3 relative to claim 10, and page 13 lines 3-6 relative to claim 20. No new matter is added.

#### CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

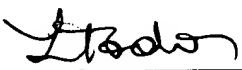
Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: July 17, 2006

By:   
Luminita A. Todor  
Registration No. 57,639

1201 New York Avenue, NW, 7th Floor  
Washington, D.C. 20005  
Telephone: (202) 434-1500  
Facsimile: (202) 434-1501